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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/750,280	12/29/2000	D. Scott Wilbur	33700WC005	6495
441	7590	12/01/2006	EXAMINER	
SMITH, GAMBRELL & RUSSELL 1850 M STREET, N.W., SUITE 800 WASHINGTON, DC 20036			KANTAMNENI, SHOBHA	
			ART UNIT	PAPER NUMBER
			1617	

DATE MAILED: 12/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/750,280

Applicant(s)

WILBUR ET AL.

Examiner

Shobha Kantamneni

Art Unit

1617

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 13 September 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 34, 73, 74 and 99-113 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) NONE is/are allowed.
- 6) ☒ Claim(s) 34, 73-74, 99-107, 109-111 is/are rejected.
- 7) ☒ Claim(s) 108, 112, 113 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

The amendment filed on 09/13/2006 amended claims 34, 99, 112 and added new claim 113.

Applicant's amendment by inserting reagent in claim 112 overcomes the rejection of claim 112 under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements.

Applicant's amendment to claim 34 overcomes the rejection of claim 34 under 35 U.S.C. 112, second paragraph, as being vague and indefinite.

Applicant's arguments have been considered but not found persuasive, and the rejection of claims 34, 73-74, 99-107, 109-111 under 35 U.S.C. 102(b) as being anticipated by Wilber et al. (WO 97/29114, PTO-1449 of record) is MAINTAINED. See under response to arguments.

Applicant's arguments, and the declaration provided by the applicant have been fully considered, and are persuasive. The rejection of claim 108 under 35 U.S.C. 103(a) as being unpatentable over Wilber et al. (WO 97/29114) as applied to claims 34, 73-74, 99, 100-107, 109-112, and further in view of Rosebrough (The Journal of Pharmacology and Experimental Therapeutics, vol 265, No.1, 1993, 408-415) is herein withdrawn.

Claims 34, 73-74, 99-113 are pending.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

Art Unit: 1617

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 34, 73-74, 99, 100-107, 109-111 are rejected under 35 U.S.C. 102(b) as being anticipated by Wilber et al. (WO 97/29114, PTO-1449 of record).

Wilbur et al. discloses biotin-containing reagent, and biotinylation reagents incorporate soluble linker moieties. Exemplified is a trifunctional reagent comprising tricarboxybenzene, biotin as the affinity ligand, maleimide as the biomolecule reactive moiety, iodinated benzene as the effector agent, and trioxadiazine as linker 1, linker 2, and linker 3. Affinity ligand, biotin is attached to trifunctional moiety through linker which has a length of at least 9 angstroms. See page 17, lines 26-30; page 18, lines 1-12; and pages 38-39. The water soluble linker moieties include groups such as ethers, carboxylates, sulfonates, ammonium etc., and with preferably 8 to 20 atoms in length. See pages 8-9. Biotin-containing compounds that are chelatable to radionuclides such as In-111, Y-90, Ga-67, Ga-68, Cu-64, Cu-67, Sm-153, Tc-99, Tc-99m, Re-186, Re-188 are disclosed. It is also disclosed that the radionuclides, gamma imaging radionuclides and therapeutic radionuclides are bound via chelation to amino-carboxy derivatives such as EDTA, DTPA, and cyclic amines such as NOTA, DOTA, and TETA. See page 23, lines 1-15. Biotin-containing compounds activated esters such as hydroxysuccinimidyl, hydroxybenzotriazole, N-hydroxypyrrolidone, phenyl, 2- and 4-nitrophenyl etc. are disclosed. See page 18, lines 14-30. The water soluble linker may be coupled to a biotin moiety through an amide forming reaction employing a amine group on the linker and the carboxylate site on a biotin moiety. The amide forming

Art Unit: 1617

reaction may include the use of coupling agents. Wilbur further teaches that the linker moiety attached to the biotin moiety is modified under certain conditions by introduction of a steric group such as carboxylates, larger alkyl groups, aryl groups etc. alpha to the amine (or another functionality) of the linker, to provide resistance to cleavage by biotinidase. Modifications of biotin by conjugation with water soluble linkers possessing a branched chain alpha methyl group such as a 3-aminobutyric acid, 1,2-diaminopropane, are desirable to produce conjugates more resistant to *in vivo* degradation by the enzyme biotinidase. Wilbur teaches that by combining a variety of biotin moieties with the carboxylate coupled steric moieties and a water soluble linker moiety, water soluble biotin compounds having varying binding affinities with biotin-binding proteins and enhanced resistance to *in vivo* degradation are obtained.

The limitation drawn to the intended use of the instant reagent has not been given any patentable weight i.e. "for conjugation to a biomolecule" in claim 99, "for diagnosis of a disease in a mammal" in claim 73, "for treatment of a cancer" in claim 74 because the recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

The recitation "for conjugation to a biomolecule with minimal perturbation of said biomolecule" has not been given patentable weight because the recitation occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely

Art Unit: 1617

recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

It is further noted that the binding affinity of a molecule is a property of the said molecule. Accordingly, since Wilbur et al. disclose the same affinity ligands as instantly claimed, absent evidence to the contrary, the compounds will have the same binding affinities as instantly claimed. A product and its properties are inseparable. *In re Papesch*, 315 F.2d 381, 137 USPQ 43 (CCPA 1963).

***Response to Applicant's Arguments:***

Applicant argues that "While Wilbur et al. may have linkers that are greater than 9 angstroms, it does not recognize the criticality of 9 angstroms as a minimum cut-off value that is necessary to preserve adequate affinity ligand (e.g., biotin binding to its ligand (i.e., avidin, streptavidin)." This argument has been considered, but not found persuasive because it is not commensurate in scope with the instant claims. The instant claims are drawn to single molecule reagent wherein R1 an affinity ligand such as biotin is coupled to X in structure (I) via a linker 1 which has a length of at least 9 angstroms. It is respectfully pointed out that Wilbur disclose biotin coupled to benzene with linkers selected from ethers such as the ether linker in the instant claim 112, and thus has a length of at least 9 angstroms. See WO 97/29114, page 39, structure 56, wherein the linker is same as instant linker in claim 112. Further, the limitation of at least 9

Art Unit: 1617

angstroms includes linkers greater than 9 angstroms, and thus reads on linkers disclosed by Wilbur, and anticipates instant claims.

***Allowable Subject Matter***

Claims 108, 112, and 113 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

**THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period, will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

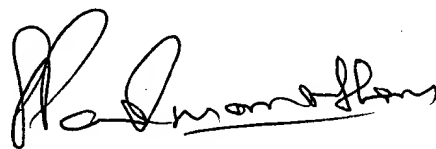
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shobha Kantamneni whose telephone number is 571-272-2930. The examiner can normally be reached on Monday-Friday, 7.30am-3.30pm.

Art Unit: 1617

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sreeni Padmanabhan can be reached on 571-272-0629. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Shobha Kantamneni, Ph.D.  
Patent Examiner  
Art Unit 1617



SREENI PADMANABHAN  
SUPERVISORY PATENT EXAMINER